

The Stream Line

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Contact Information

Shafiq Amawi

Division of Water (DOW)
200 Fair Oaks Lane
4th Floor
Frankfort, KY 40601
502-564-3410, ext. 4961
Fax: 502-564-9003
E-mail: Shafiq.amawi@ky.gov
water.ky.gov

John Covington

Kentucky Infrastructure Authority (KIA)
1024 Capital Center Drive
Suite 340
Frankfort, KY 40601
502-573-0260
Fax: 502-573-0157
kia.ky.gov



Community Spotlight: City of Livermore

City of Livermore Sewer Rehabilitation Project

By William Averell

The city of Livermore in McLean County recently completed a \$2 million wastewater infrastructure improvements project funded through a \$1 million Clean Water State Revolving Fund low-interest loan and a \$1 million Community Development Block Grant. The McLean sewer project will have both short- and long-term effects by relieving current pressure on the wastewater treatment plant while opening the possibility of service extension into unincorporated areas of McLean County.

John Renfrow, mayor of Livermore, said the project addresses one of the biggest problems facing municipal governments, namely, the deterioration of essential infrastructure components.

"The completion of our sewer rehabilitation

project has impacted the burden of infiltration and inflows at our waste water facility by a 35 to 45 percent reduction during the initial period since completion of the project," Mayor Renfrow said.

The city had been experiencing infiltration and inflow issues that caused overflows at manholes in the system and at the wastewater treatment plant. The project was developed to improve sewer service to Livermore's 511 customers (approximately 1,450 people) by mitigating the inflow of storm water into the system during wet weather and relieving the extraneous burden of infiltration and inflow (I&I) at the Livermore wastewater treatment plant.

The peak flows at the treatment plant occur only in the wet season when the groundwater is high and

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Lawrence Street Lift Station. Photo by Mohammed Mohiuddin

Capacity Development Assistance Program For Small Systems

The DOW Capacity Development staff is currently wrapping up the second funding year of the Capacity Development Assistance Program (CDAP) for Small Systems. This program provides financial assistance to qualifying small drinking water systems to achieve and maintain sufficient Technical, Managerial and Financial (TMF) capacity in order to provide the public with safe drinking water. This assistance program also helps systems remain in compliance with national and state drinking water regulations.

DOW Capacity Development staff conducts Sanitary Surveys (SS) of drinking water systems across Kentucky to review TMF capacity. Any regulatory deficiencies are noted and any additional recommendations for improving TMF capacity are reported to systems. These recommendations, though important, may be non-regulatory and systems find it difficult to fund their implementation.

The CDAP helps public water systems adopt recommendations of the SS or other technical assistance provider inspections. The CDAP funds may not be used for capital construction, infrastructure improvements or salaries. Items such as system mapping, tank inspections, preparation of emergency response or asset management plans, operation and maintenance plans and leak detection are eligible for funding.

The CDAP is administered by DOW and the Kentucky Rural Community Assistance Partnership (RCAP). During the current cycle, 25 projects out of 73 applications were awarded funding. The projects funded in this round included tank inspections, leak detection equipment and services, and mapping.

The Capacity Development section is excited to see the success of this and last year's CDAP, and looks forward to providing further assistance to many small drinking water systems that may otherwise struggle with state and federal regulations.



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rainfall abundant. During the summer/fall dry-month period (July to December), the flow averages below 0.15 million gallons per day (MGD). During the wetter months (January to June), the average daily flow is approximately 0.31 MGD, indicating an increase in flow of approximately 200 percent.

Normally, the rain must be over 2 inches per day before the manholes overflow. The flow values at the treatment plant during the wetter months have had some months where the average daily flow exceeded the design capacity of 0.315. Since the population of Livermore has had an overall decline between 2001 (1,460) and 2010 (1,448), the increase in flow appeared to be related to an increase in the infiltration and inflow.

In 2007, Livermore contracted with GRW Engineers to conduct a sewer system evaluation survey of the city's wastewater infrastructure system, which included a comparison of alternative proposals for addressing the local I&I situation. To complete the study, GRW Engineers performed a TV inspection of 27,700 linear feet of the existing 57,200 total feet of lines.

- Alternative 1: Do Nothing. If no action was taken to replace or rehab the sewer lines, the city's I&I flow would begin to cause operational problems at the treatment plant. The existing sewer lines would also need to be rehabilitated or replaced with larger lines.
- Alternative 2: Expand the wastewater treatment plant.
- Alternative 3 – Rehab or replace deteriorated sewer lines and manholes.

Alternative 3 was determined to be the best choice for the city and county in terms of cost and effectiveness. The decision was also made to rehab sewer lines at a cost of approximately \$50 per linear foot versus replacing them at \$70 per foot. Rehabilitation would also be less invasive since excavation would be limited to the locations where service lines are connected to the main line.

Rehabilitation of manholes was also chosen over manhole replacement, again at significant savings. The internal inspection of the old portions of the sanitary sewer lines included inspection of the associated manholes.

When it came to the sewage pumping lift stations, however, replacement was chosen over rehabilitation due to the extent of deterioration. The Green River station was replaced at a cost of \$150,000 and included variable frequency drives to allow for more consistent flows into the wastewater treatment plant. The Lawrence Street pump station was replaced at a cost of \$100,000.

Mayor Renfrow said the project will have a significant impact on the area now and in the future.

"The overall impact on a reduction in manpower hours necessary to resolve customer issues has been significant in the overall savings of time in locating and resolving blockages due to the enhanced cleanout facility locations, manhole rehabilitation and GIS mapping of both wastewater lines and freshwater systems," Renfrow said. "The rehabilitation of more than 50 percent of our existing lines should allow functionality of the existing system over the next 40 years. The reduction of flows into the facility and the replacement of our lift stations should provide a dramatic enhancement to the overall quality of life and public health of our citizens."

News You Can Use

SRF Binding Commitments, May 2013 to September 2013

May 2013

Fund A (Clean Water)

- Regional Water Resource Agency-\$1,538,750
- Oldham County Environmental Authority-\$6,500,000

Fund F (Drinking Water)

- Carrollton-\$1,538,817
- Northern Kentucky Water District-\$4,000,000
- Hopkinsville-\$4,000,000

June 2013

Fund A (Clean Water)

- Lincoln County Sanitation District-\$2,000,000

Fund F (Drinking Water)

- Williamstown-\$2,000,000

July 2013

None

August 2013

None

September 2013

None

Update on ARRA Funds Expended and Remaining

The American Recovery and Reinvestment Act (ARRA) of 2009 allotted \$70.2 million to Kentucky for wastewater infrastructure and drinking water projects.

Kentucky Clean Water State Revolving Fund received approximately \$49.7 million while Kentucky's Drinking Water State Revolving Fund received approximately \$20.5 million.

To date, Kentucky has paid out \$49,878,100 in Clean Water ARRA project expenditures, with zero project funds still under construction. There were 45 Clean Water ARRA projects, which are now closed with all construction work and ARRA required documentation completed.

Kentucky has paid out \$20,450,000 in Drinking Water ARRA project expenditures, with zero project funds still under construction. There were 18 Drinking Water ARRA projects, which are now closed with all construction work and ARRA required documentation completed.

Kentucky's State Revolving Fund has completed its part in the American Recovery and Reinvestment Act and has infused \$70.3 million into the state's infrastructure.



We need your help!

Do you have an idea or suggestion for a future issue of *The Stream Line* or know someone to add to our mailing list? Contact Buddy Griffin at buddy.griffin@ky.gov. Please forward this newsletter to others who may be interested!

The Stream Line

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